

Coffs Harbour City Council

Asset Management Plan
for Water Supply Assets

March 2011



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results
in the public sector

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Document Status

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1. INTRODUCTION

1.1 Background

Coffs Harbours City Councils water supply serves a permanent population of approximately 66,000 people, between Corindi in the north, Sawtell/Toormina in the south and Nana Glen to the west. Council's drinking water supply to the majority of the area is currently supplied with raw water from the 5,600 megalitres (ML) Karangi Dam, which is sourced from Cochrane's Pool on the Orara River and from Clarence Valley Council, via the Regional Water Supply (RWS) pipeline from the Nymboida River or water from the new 30,000 ML Shannon Creek Dam. Karangi Dam is situated approximately 15 kilometres west of Coffs Harbour and Shannon Creek Dam is about 9 kms west of Coutts Crossing.

The RWS pipeline and Shannon Creek Dam are owned, operated and maintained by Clarence Valley Council, but Coffs Harbour City Council pay an agreed proportion of the costs. Council also pays part of the costs for abstraction from the Nymboida river to Country Energy, who own the infrastructure as part of the Nymboida power station.

The raw water is treated to drinking water standard by the new Karangi Water Treatment Plant just east of the dam.

Two smaller supplies are situated at the villages of Coramba and Nana Glen. Nana Glen is supplied with raw water from the Orara River and then treated at the Nana Glen Water Treatment Plant. Coramba is supplied with raw water from the Regional Water Supply Pipeline or from the Orara River, which is then disinfected before distribution to consumers.

Coffs Harbour, Coramba and Nana Glen water supplies have 20 reservoirs in total. The combined capacity of all the reservoirs is 84 megalitres. The reservoirs range in size from 0.45 megalitres to 20 megalitres capacity.

Coffs Harbour, Coramba and Nana Glen water supplies have nine water pump stations. The major pump stations are Cochrane's Pool Intake Pump Station and Karangi Water Treatment Plant Treated Water Pump Station.

At the Karangi Water Treatment Plant the drinking water has been fluoridated since the 11th June 2009. Coramba and Nana Glen, which are not on the Karangi Water Treatment Plant supply system, do not receive fluoridated water.

The Woolgoolga Dam situated 1.5km west of the town of Woolgoolga has remained out of active service since 1986 (except for a brief period during the drought in 1993) as a result of water quality issues. The dam remains on standby for emergency use in droughts or emergencies; however with the water supply security now ensured by the Regional Water Supply Scheme its future is now uncertain.

CHCC has acquired the water supply assets over an extended period by a number of different means. Some assets have been purchased or constructed by Council or its

contractors and other assets have been contributed by developers and others. The State Government has subsidised the construction of some of the larger infrastructure.

Council's goal in providing and managing its water supply assets is to meet the adopted levels of service in the most cost effective manner for present and future consumers by:

- taking a life cycle approach
- developing cost-effective management strategies for the long term
- delivering defined levels of service and monitoring performance
- understanding and meeting changing demands through demand management and infrastructure investment
- Managing risks
- using resources sustainably
- continuous improvement in asset management practices.

This Asset Management Plan takes into account Council's Vision, Purpose and Strategic Themes -

Council's Vision is:

Coffs Harbour - the Healthy City, the Smart City, the Cultural City for a Sustainable Future

Council's Purpose is:

To make Coffs Harbour a better place to live, as a regional city for present and future communities

The *Coffs Harbour 2030* Community Strategic Plan identifies five strategic 'themes':

- Looking after our environment
- Learning and prospering
- Places for living
- Moving around
- Looking after our community

1.2 Purpose of this asset management plan

This Asset Management Plan (AMP) provides the framework to ensure that Coffs Harbour City Council's water supply assets are; provided, operated, maintained, renewed and upgraded to ensure that Council's water supply related levels of service are achieved in the most cost effective and sustainable way.

The plan does not contain detailed technical information, but provides the current position regarding Council's water supply assets and their sustainable provision in the future, and incorporates an asset management improvement plan. Where detailed information is available it is included by reference.

1.3 Relationship with other planning documents

This AMP should to be read in conjunction with the following associated documents:

- Coffs Harbour 2030 Community Strategic Plan
- Coffs Harbour City Council's Delivery Program 2010 - 2014
- Coffs Harbour City Council's Operational Plan 2010 - 2011
- Coffs Harbour City Council's Program Budgets 2010 - 2011
- Coffs Harbour City Council's Asset Management Policy and Strategy

1.4 Scope of this plan

CHCC provides a range of water supply related assets representing a community investment of approximately \$311 million (2010 estimated replacement value). Details of the assets covered by this AMP are provided in Table 1-1.

Table 1-1 CHCC water supply assets

Asset Category	Quantity	Estimated Replacement Value 2010
Reservoirs and dams	22	\$76,878,233.
Trunk mains	236km	\$84,268,270
Reticulation mains	633km	\$63,581,758
Pump stations	8	\$2,507,487
Treatment plants	2	\$83,615,237
Ancillary items		\$673,254
Total		\$311,524,239.

Note: trunk main and reticulation values include for chambers, valves and other fittings

1.5 Key stakeholders

Key stakeholders in relation to the water supply assets are detailed in Table 1-2.

Table 1-2 Key stakeholders

Stakeholder	Comment
Council officers	Council officers manage assets to deliver the Levels of Service agreed by Council following consultation with the community, and within agreed budgets. Council officers implement the AMP.

Stakeholder	Comment
Council	Council sets the Levels of Service taking the expectations of the community, legislative requirements and funding levels into account. They are primarily responsible to ensure that their decisions represent and reflect the needs of the wider community.
NSW Office of Water	NSW Office of Water carry out the performance monitoring and benchmarking as required under <i>National Competition Policy</i> and the <i>National Water Initiative</i> . Performance monitoring is also a key requirement of the <i>NSW Best-Practice Management of Water Supply and Sewerage Guidelines</i> .
Community	The community and visitors are users of infrastructure assets. Their expectations are communicated to Council via consultation.
Insurers	Insurers have an interest in the implementation of asset management systems, which allow Council to properly manage the risks associated with the assets
NSW Health	Ensure compliance with the ADWG.

1.6 Organisational structure

The responsibilities in relation to Asset management are shown in Table 1-3 below.

Table 1-3 Asset management responsibilities

Role	Position in CHCC	Responsibility
Asset owner	To be confirmed	Implementation of the strategic AMPs, O&M planning, concept designs and works specifications, works project management, asset performance monitoring and data collection.
Service delivery	To be confirmed	Implementing the O&M plans, repairs, renewals and new works construction, and designs.
Asset management coordination	Manager Asset Systems	Asset management system, data management.
Strategic asset planning	To be confirmed	Preparation of strategic AMPs, long term planning, development management.

2. LEVELS OF SERVICE

The objective of asset management is to enable assets to be managed such that agreed Levels of Service are consistently delivered in the most cost effective way. There are two types of Level of Service:

- Customer Levels of Service are related to the service that the customer receives. The community's expectations with regard to levels of service are communicated to Council via consultation. The levels of service are established by Council taking the communities expectations, legislative requirements and available funding into account
- Technical Levels of Service are technical in nature and are the means by which CHCC officers establish and manage the operation and maintenance required to ensure that the Customer Levels of Service are achieved

2.1 Customer research and expectations

Extensive community consultation took place in the Clarence and Coffs Harbour areas as part of the development of the Regional Water Supply Scheme, with a Community Advisory Group (CAG) formed in mid 1996. The Aboriginal community in particular had considerable input into the Project. As a result of the consultation an extensive Water Efficiency Program and ongoing environmental monitoring program were put in place and many changes made to the scheme.

A number of community consultation initiatives have been undertaken by CHCC in the last two - three years to identify some of the aspirations of the community in regard to the services provided by Council. None of these initiatives have identified the customer's views or expectations of the water supply service.

2.2 Strategic goals and objectives

Coffs Harbour City Council's main purpose is to make Coffs Harbour a better place to live, as a regional city for present and future communities. The values are the underlying principles influencing daily decisions and actions of the councillors and council staff. These values define Council's relationship with the community, customers and suppliers.

The Community Strategic Plan identifies five key strategic 'themes':

- Looking after our environment
- Learning and prospering
- Places for living
- Moving around
- Looking after our community

Each theme is linked to objectives and strategies. The strategies related to water supply assets are shown in Table 2-1 below.

Table 2-1 Water supply strategies

Objective	Strategy
We are responsible in the use and management of our natural resources and work to reduce our ecological footprint	Implement total water cycle management practices
Our council organisation supports the delivery of high quality, sustainable outcomes for Coffs Harbour	Ensure Council's administration structure facilitates the efficient and effective delivery of program

2.3 Legislative requirements

Council has to meet many legislative requirements including Commonwealth and State legislation and associated regulations as shown in Table 2-2.

Table 2-2 Legislative requirements

Legislation	Requirement
Local Government Act 1993	<p>Sets out role, purpose, responsibilities and powers of local governments. Draft Bill 2009 includes the preparation of a long term financial plan supported by asset management plans for sustainable service delivery.</p> <p>The purposes of this Act are as follows:</p> <ul style="list-style-type: none"> a) to provide the legal framework for an effective, efficient, environmentally responsible and open system of local government in New South Wales b) to regulate the relationships between the people and bodies comprising the system of local government in New South Wales c) to encourage and assist the effective participation of local communities in the affairs of local government d) to give councils: <ul style="list-style-type: none"> - the ability to provide goods, services and facilities, and to carry out activities, appropriate to the current and future needs of local communities and of the wider public - the responsibility for administering some regulatory systems under this Act - a role in the management, improvement and development of the resources of their areas. e) to require councils, councillors and council employees to have regard to the principles of ecologically sustainable development in carrying out their responsibilities
Water Act 1912	This Act is being progressively phased out and replaced by the

Legislation	Requirement
	<i>Water Management Act 2000</i> , but some provisions are still in force.
Environmental Planning and Assessment Act 1979	An Act to institute a system of environmental planning and assessment for the State of New South Wales. Among other requirements, the Act outlines the requirement for the preparation of Local Environmental Plans (LEP), Development Control Plans (DCP), Environmental Impact Assessments (EIA) and Environmental Impact Statements.
Occupational Health and Safety Act 2000 and Rehabilitation Act 1987	Sets out roles and responsibilities to secure the health, safety and welfare of persons at work and covering injury management, emphasising rehabilitation of workers particularly for return to work. Council is to provide a safe working environment and supply equipment to ensure safety.
Threatened Species Conservation Act 1995	An Act to conserve threatened species, populations and ecological communities of animals and plants.
Protection of the Environment Operations Act 1997	Council is required to exercise due diligence to avoid environmental impact and among others are required to develop operations emergency plans and due diligence plans to ensure that procedures are in place to prevent or minimise pollution.
Water Management Act 2000	Recognises the need to allocate and provide water for the environmental health of rivers and groundwater systems, while also providing licence holders with more secure access to water and greater opportunities to trade water in particular through the separation of water licences from land. The main tools the Act provides for managing the State's water resources are water sharing plans.
Water Management (General) Regulation 2004	Assists in implementing the Water Management Act 2000 and contains various procedural matters, specifies exemptions from the need to hold an access licence or an approval in certain circumstances and the changeover formulae applying to the new category of supplementary water access licences (formerly off-allocation water)
Disability Discrimination Act 1992	The Federal Disability Discrimination Act 1992 (D.D.A.) provides protection for everyone in Australia against discrimination based on disability. It encourages everyone to be involved in implementing the Act and to share in the overall benefits to the community and the economy that flow from participation by the widest range of people.
Native Vegetation Act 2003	This Act regulates the clearing of native vegetation on all land in NSW, except for excluded land listed in Schedule 1 of the Act. The Act outlines what landowners can and cannot do in clearing native vegetation.
Dams Safety Act 1978	This Act regulates the safe operation and maintenance of prescribed dams.

Legislation	Requirement
Public Health Act 2010	The objects of this Act are: (a) to promote, protect and improve public health, (b) to control the risks to public health, (c) to promote the control of infectious diseases, (d) to prevent the spread of infectious diseases, (e) to recognise the role of local government in protecting public health.
Fluoridation of Public Water Supplies Act 1957	This Act regulates the fluoridation of public water supplies.

2.4 Current levels of service

Levels of service were established in the draft Water Supply Strategic Business Plan 2000/2001. Although some of these levels of service are still adhered to in many cases the performance against these is not currently monitored and they are therefore redundant. The water quality levels of service have been amended to comply with the Australian Drinking Water Guidelines 2004 and these are monitored. Response times are also monitored.

In order to meet the requirements of the National Competition Policy and the National Water Initiative, the NSW Office of Water requires CHCC to monitor and report on a number of performance indicators.

It should be noted that there are no target performance levels associated with the performance indicators – performance is assessed on a benchmark basis, although Council has a target of achieving Ranking 1 in all performance indicators, which equates to being in the top 20% of Council's in NSW.

A number of the performance indicators are, asset management related, technical levels of service.

This AMP is based on Levels of Service taken from the performance indicators as shown in the table below. Revised specific levels of service need to be developed taking into account customer expectations and affordability.

Table 2-3 Levels of service based on performance indicators

Level of Service	Performance achieved 2008/9	NSW Office of Water TBL 2008/9 Ranking
Number of connected residential properties	94% of total residential properties	n/a
Physical water quality compliance	100%	1
Chemical water quality compliance	100%	1

Level of Service	Performance achieved 2008/9	NSW Office of Water TBL 2008/9 Ranking
Microbiological (E. coli) water quality compliance	100%	1
Number of complaints about water quality per 1000 properties	8	5
Number of complaints about water service per 1000 properties	40	5
Average frequency of unplanned interruptions per 1000 properties	24	3
Average duration of water supply interruptions	120 minutes	1
Number of water main breaks per 100 km of water main	11	4
Drought water restrictions	0% of time	1
Total days lost	3.3% of total	4
Average annual residential water supplied	165kL/property	3
Leakage	50L/service connection/day	2
Response to disruptions to water supply	2 hours	n/a
Response to verbal enquiries	1 working day	n/a
Response to written enquiries	10 working days	n/a
Response to water services enquiries within 10 working days	90%	n/a

Historically there have been no separately identified customer levels of service for water supply assets, apart from Council's customer service policy which is generally focused on response times to customer enquiries and requests.

2.5 Desired levels of service

Initially, the desired Levels of Service and performance targets are the current performance levels as shown in the table above.

Future customer Levels of Service are to be determined at the next review of the strategic plan taking customer expectations into account. Future technical Levels of Service will be based on the customer Levels of Service.

3. FUTURE DEMAND

3.1 Demand forecast

Factors affecting demand include; population change, changes in demographics, seasonal factors, consumer preferences and expectations, economic factors, agricultural practices, environmental awareness, etc.

The 2009, Coffs Harbour City Population Profile, which is based on the 2006 Census undertaken by the Australian Bureau of Statistics, identifies a number of trends that will impact on service delivery as shown in Table 3-1. The average annual growth rate of Coffs Harbour over the next 10 years is forecast at 1.6%.

Table 3-1 Demand factors, projections and impact on services

Demand factor	Present position (2006)	Projection (2031)	Impact on services
Population	Estimated Resident Population 64,910	Projected Population 98,710	Population growth will place an increased demand for the provision of Infrastructure assets
Demographics	Median Age 41 % Population older than 45 is 45%	Median Age 51 % Population older than 45 is 58%	The trend towards an aging population will place a higher demand on some infrastructure assets
Increasing construction, operational, maintenance and renewal costs	The costs associated with asset construction, operations, maintenance and renewal is increasing at a greater rate than Council's revenues	Costs increases are forecast to continue	The need to carefully plan infrastructure is increasing in importance. A focus on maximising the service that can be delivered within the funding limitations is required.
Environment and Climate Change	Current position is known	Future position is uncertain, but indications are that change, including periods of drought and increased frequency of major storm events is likely	Need to plan for both drought and storm conditions so that disruption to services is minimised

There is currently no formal procedure to take the above into account in determining demand forecasts for the water supply assets.

It should be noted that the regional water supply for supply of bulk raw water to the region was designed for a population of 94,253 in 2021 and a usage of 250 kL/year for

an occupied single dwelling. The present consumption is only 165 kL/property, so the system will easily cater for the 2031 population projections and beyond.

A recent study by NSW Office of Water; “Pilot Study to Assess the Impact of Climate Change on the Secure Yield of Town Water Supplies”, included the RWS as one of the pilot systems. This will go towards developing a Guideline for secure yields and will give the region assurance as to the security of the bulk supply during climate change. The population growth was taken into account in the design of the new Coffs Harbour Water Reclamation Plant and the Water Treatment Plant.

3.2 Changes in technology

The main areas where technology changes may affect the delivery of services are in the areas of condition monitoring, trenchless technology, SCADA technology and water treatment processes and construction.

Changes in demand may occur as a result of growth in population, changes in the local economy, customer education and climate change.

3.3 Demand management plan

The demand management plan covers the management of demand changes by:

- managing existing assets
- upgrading existing assets
- providing new assets to meet demands
- managing the demand, including consideration of non-asset solutions such as customer education.

3.4 New assets from growth

Growth forecasts indicate that new infrastructure assets will be required to meet future growth. CHCC will acquire these assets from private land development activities and from its own construction works.

Acquiring these new assets will commit Council to funding ongoing operation and maintenance costs for the assets, for the period that the service provided from the assets is required. These future costs are identified and considered in developing financial forecasts.

4. LIFECYCLE MANAGEMENT PLAN

The lifecycle management plan details how Council intends to manage and operate the assets at the agreed levels of service while optimising life cycle costs.

4.1 Background data

4.1.1 Asset value

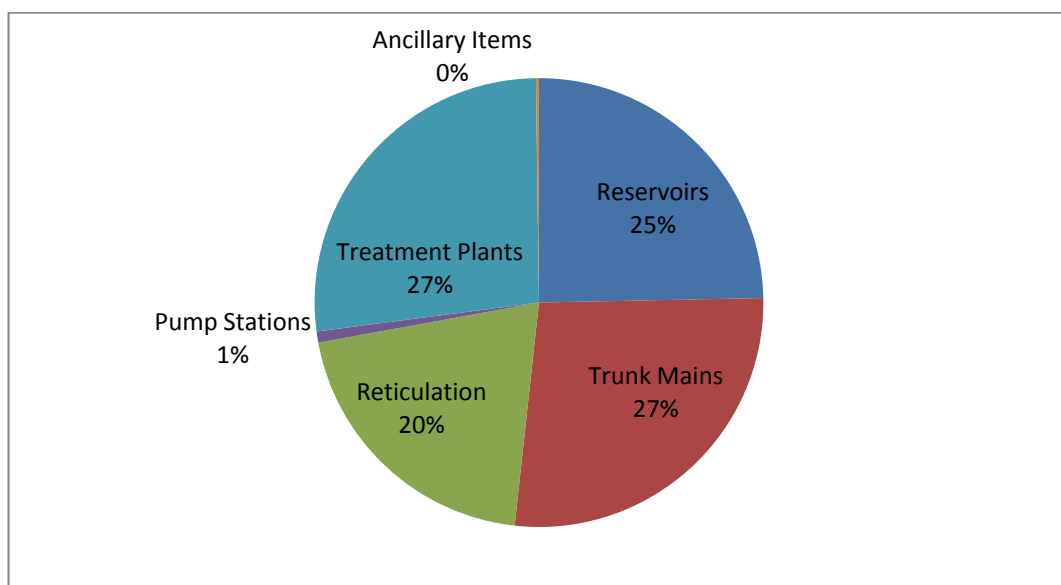
A summary of the assets covered by this asset management plan is provided in Section 1.4. The figures provided are based on the best currently available information. An indication of the relative values of assets which make up Council's water supply assets is shown in Table 4-1 and Figure 4-1.

Table 4-1 Proportion of value by asset types

Asset type	Proportion of value of water supply asset class
Reservoirs and Dams	24.7%
Trunk Mains	27.1%
Reticulation Mains	20.4%
Pumping Stations	0.8%
Treatment Plants	26.8%
Ancillary Items	0.2%

Note: trunk main and reticulation values include for chambers, valves and other fittings

Figure 4-1 Proportion of value by asset types



4.1.2 Asset material and age

The age profile of Council's water supply assets based on length of pipe in each material is shown in table 4.2. The profile has been developed based on current information.

Table 4-2 Trunk main and reticulation pipe material and age

Material	more than 50 years	40-49 years	30-39 years	20-29 years	9-19 years	less than 9 years	Total length m
uPVC			13,307	157,990	88,184	39,754	299,235
	0.0%	0.0%	4.4%	52.8%	29.5%	13.3%	
AC	5,297	19,036	85,040	70,984	515	336	175,911
	3.0%	10.8%	48.3%	40.4%	0.3%	0.2%	
CI	2,014	11,303	16,850	2,791	221		33,179
	6.1%	34.1%	50.8%	8.4%	0.7%	0.0%	
DI		10	1,229	24,147	48,710	14,705	88,801
	0.0%	0.0%	1.4%	27.2%	54.9%	16.6%	
HDPE						450	450
	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	
HOBAS				1,904	855		2,759
	0.0%	0.0%	0.0%	69.0%	31.0%	0.0%	
Mild Steel			55	14,052	543	101	14,751
	0.0%	0.0%	0.4%	95.3%	3.7%	0.7%	
STEEL				6,116			6,116
	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	
Unknown			6,309	3,181	2,323		11,813
	0.0%	0.0%	53.4%	26.9%	19.7%	0.0%	
Overall	7,311	30,349	122,790	281,165	141,351	55,346	633,015
	1.2%	4.8%	19.4%	44.4%	22.3%	8.7%	

The age profile indicates that 76.7% water supply pipeline assets are less than 30 years old. The system is therefore relatively young.

4.1.3 Asset condition

There is no direct data on the condition of trunk water mains and the reticulation system. The condition is informed by the frequency of pipe bursts in different parts of the system.

It is known that a portion of 96.7km of white uPVC main laid between 1977 and 1990 is in poor condition and is susceptible to bursts.

The condition of the treatment plant, reservoirs and pumping station are assessed informally by Council staff as being satisfactory.

4.2 Asset maintenance

4.2.1 Maintenance plans

The following maintenance plans are utilised by Council.

- Treatment plants
 - Servicing of plant, equipment and instrumentation in accordance with equipment manufacturers requirements,
 - Inspections of electrical switchboards
 - Annual thermographic surveys of electrical switchboards
 - Pest control maintenance
 - Monthly test running of all generators
- Pumping stations
 - Servicing of equipment and instrumentation in accordance with equipment manufacturers requirements
 - Annual and weekly maintenance and inspection schedules
 - Weekly inspection of dosing systems
 - Inspections of electrical switchboards
 - 2 yearly thermographic surveys of electrical switchboards
 - Pest control maintenance
 - Periodic inspection and mowing of rising main easements
 - Periodic inspection of above ground rising mains
- Reticulation systems
 - Maintenance of repeat burst register
 - Chamber maintenance schedule
 - Periodic inspection and mowing of trunk main easements
 - Regular hydrant and stop valve maintenance
 - Periodic inspections of cathodic protection
- Periodic inspections of reservoirs
- Meter exchange program
- Dam maintenance in accordance with O&M Manuals and Dam Safety Committee Requirements

All other maintenance is unplanned.

Risk based maintenance management plans, taking the above plans into account, are required for treatment plants, reservoirs, pumping stations, trunk mains and the reticulation system, taking into account likelihood and consequence for failures.

Clarence Valley Council owns and maintains the Regional Water Supply pipeline, including Shannon Creek Dam and pump stations, with Coffs Harbour City Council paying a proportion of the operation and maintenance cost. There is no existing maintenance management plan for regional water supply system, but one is in the process of being development by Clarence Valley Council.

4.2.2 Current and forecast operations and maintenance expenditure

Maintenance expenditure on water supply assets over the past three years is shown in Table 4-3.

Table 4-3 Operations and maintenance expenditure trends for water supply assets

	2007/8	2008/9	2009/10
Dams	272,008.09	342,339.46	318,328.15
Reservoirs	519,842.11	255,641.49	248,888.15
Emerald Booster Chlorination Plant	14,418.35	11,964.82	8,883.39
Pumping Stations	390,551.78	512,049.33	328,060.98
Nana Glen Water Supply	61,173.02	70,363.69	57,932.70
Coramba Water Supply	36,198.59	43,003.26	39,233.66
Disinfection Red Hill (included in WFP in 09/10)	80,510.38	74,974.92	8,849.70
Water Conditioning/filtration plant	220,887.56	321,822.28	1,214,186.89
Mains Maintenance	971,977.85	1,063,645.62	1,229,084.52
Catchment & Weirs	16,507.87	53,761.79	18,784.15
Telemetry	28,404.94	15,129.75	13,312.83
Total	2,612,480.54	2,764,696.41	3,485,545.12

Note: Filtration Plant was commissioned in 2009, which included water conditioning. Current maintenance expenditure levels are considered to be adequate to maintain the current condition and to meet the current Levels of Service

There is likely to be changes in demand for the services provided by water supply assets into the future. Additional assets to meet these demands will be acquired through development activities and by council funded works.

Over recent years, the length of Council's water supply reticulation system has been growing at a rate of about 1.5%, although this varies among the various asset types. It is anticipated that the trend will continue.

It has been assumed that the annual growth in population served is 1.6% in accordance with the 2009, Coffs Harbour City Population Profile forecast.

The forecast of operations and maintenance expenditure is shown in table 5-2.

4.3 Renewals

In the absence of condition assessments for water supply assets, renewals forecasts for trunk mains and the reticulation system have been based on the following:

- a) White uPVC pipelines will be replaced on the basis of 7% of replacement value per year.
- b) Other pipeline assets that are currently assessed as having no remaining useful life, or that will have no remaining life within the next ten years, will be renewed within the ten year period.
- c) Forecast cash flow for pipeline renewals is equalised over the ten year period. The renewal of the telemetry system takes place in 2014/15 at the end of its life (The telemetry system will be continually renewed).
- d) Unit rates for renewals work are based on the NSW Reference Rates Manual for Valuation of Water Supply, Sewerage and Stormwater Assets.

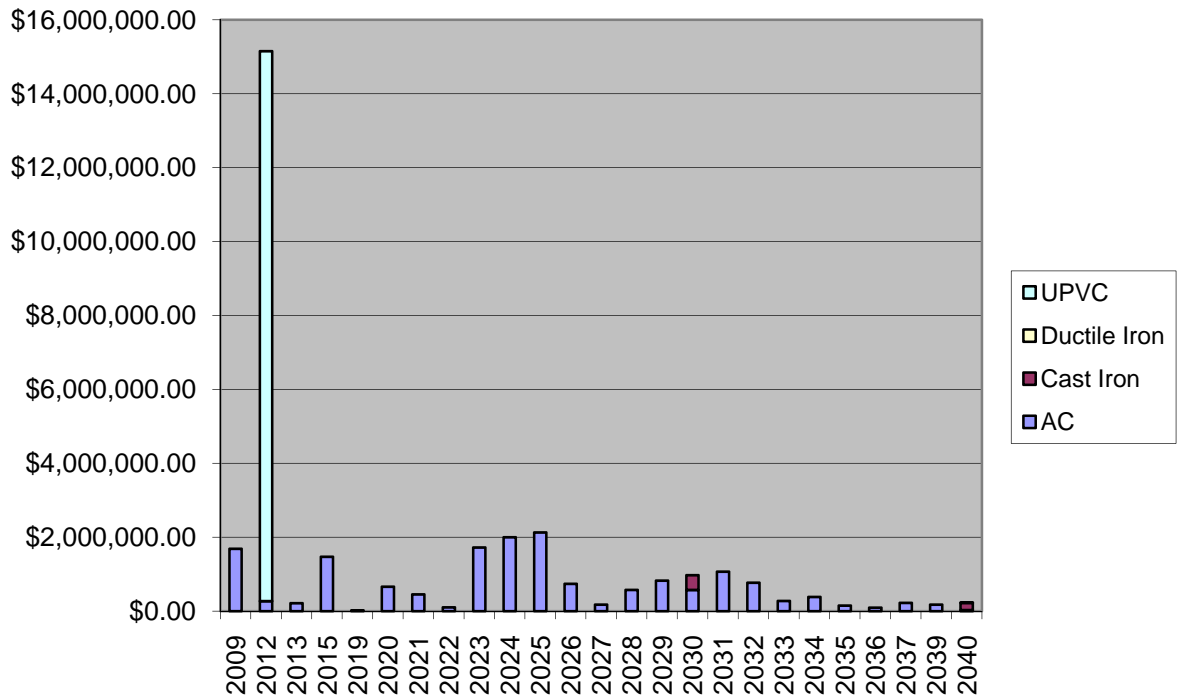
In the absence of further information, renewal of pumping station equipment has been forecast on the basis of replacement at the end of their asset lives. It has been assumed that the renewal of the mechanical and electrical equipment will be undertaken over a five year period commencing in 2016/17 (end of asset life occurs in 2018).

The renewals forecast will be refined on the basis of improved information about asset condition and a risk assessment taking into account pipeline burst frequencies, asset condition, water quality and consequences of failure.

The forecast of renewals expenditure over the next 10 years is shown in table 5-3.

Figure 4-2 below shows the forecast pipe renewals based on pipe age. Apart from the replacement of the white uPVC pipe, which is shown to occur in a single year, the level of pipe renewals is at an average \$850,000 per year until 2060.

Figure 4-2 Forecast pipe renewals



4.4 Acquisition procedures

Acquisitions create a new asset that did not previously exist, or increase the capacity of or improve the quality of an existing asset. They may result from growth, social or environmental needs. Assets may also be acquired by Council from land development activities.

There is no written procedure in place for the process of adding new assets to the asset management or financial systems; however there is a process in place for transfer of responsibility for maintenance to Council. The present unwritten process comprises a Council inspector checking the construction work against the construction drawings. Once the construction has been signed off by the subdivision engineer the asset information is passed on to the Asset Systems branch. In-house and contract works follow a similar process and data on new assets is captured within the asset system.

The forecast of acquisition expenditure is shown in table 5-4.

4.5 Risk management

Council has a corporate risk procedure.

An initial assessment of risks associated with the water assets has been undertaken as shown in Table 4-4 below

Table 4-4 Critical risks and treatment plans

Risk	Consequence	Risk Rating	Risk Treatment Plan
Overall condition of assets decreases due to inadequate renewal and maintenance programs	Levels of Service not achieved	High	Improve data, determine priorities based on lifecycle costs, service and risk criteria
Changes in legislation affect the responsibilities of Council	Changes in costs and resource requirements	Low	Monitor legislative changes
Resource constraints affect the management of the assets	Levels of Service not achieved, condition of assets deteriorates	High	Establish clear management plans, with forecast costs, to maintain Levels of Service and debate with Council
Unforeseen increases in fuel, plant and materials costs	Increased costs of carrying out repairs and renewals	Medium	Monitor costs
Increases in power costs	Increased operational costs	High	Monitor costs and optimise use
Increase in chemical costs	Increased operational costs	High	Monitor costs and optimise use
Failure of materials supplies	Delays to repairs and renewals and increased materials costs	Medium	Ensure alternative supply arrangements are in place for critical materials
Flooding/storms	Loss of short term functionality of asset, damage to asset causing loss of supply and/or cost increases	High	Implement flood management program
OH&S incident whilst working on assets causes fatality or serious harm injury	Prosecution risk	Low	Ensure Council has OH&S procedures and staff are trained in them. Ensure all contractors have OH&S policy and procedures and they are complied with
Drought	Loss of or restrictions to supply	Medium	Improved security of supply and customer education
Power failure	Loss of or restrictions to supply	Medium	Ensuring stand by power generation is available to maintain treatment and supply
Contamination of water	Loss of or restrictions to supply and water quality	Low	Monitoring of water quality to reduce public health

Risk	Consequence	Risk Rating	Risk Treatment Plan
supply	issues, public health risk		risk
Increase in charges by Clarence Valley Council for maintenance of Regional Water Supply pipeline	Increased costs	Low	Agree maintenance plan with North Coast Water and ensure Country Energy (new owners) costs don't escalate
Vandalism?Terrorism	Loss of or restrictions to supply and water quality issues, public health risk	Low	Ensure good security of infrastructure

4.6 Disposal plan

Disposal includes any activity associated with disposal of a decommissioned asset including sale, demolition or relocation.

No significant assets have been identified for disposal.

These have been identified in Council's works programs which include the proposed timing of replacements and the estimated cost. No further assets are currently identified for disposal.

Council does not have a disposal procedure.

5. FINANCIAL SUMMARY

This section contains the financial forecasts resulting from the information presented in previous sections of this asset management plan and based on the information available.

Inflation is based on the forecasts given in the *Access Economics Business Outlook, September 2010* as follows:

2010/11	2.9%
2011/12	3.0%
2012/13	2.9%
2013/14	2.5%
2014/15	2.4%

And 2.4% per year thereafter

5.1 Depreciation

Depreciation of assets is undertaken on a straight line basis. Standard asset lives are shown in the Table 5-1.

Table 5-1 Standard asset life for depreciation purposes

Asset Class	Asset material	Standard asset life (years)
Pipelines	Asbestos Cement	50
	uPVC	70
	Cast Iron	80
	Ductile Iron	80
	HDPE	100
	HOBAS	80
	Steel/mild steel	80
	Unknown	50
Reservoirs	R.C./steel	100
M&E plant and equipment		25
Telemetry		15
Other structures		50

5.2 Cost forecasts

The forecasts for operational and maintenance costs, renewals and acquisitions are shown in the tables below.

Operational and maintenance costs include all labour, plant, materials and consumables required to operate and maintain the assets.

The acquisition forecast is in accordance with Council's current long term financial plan.

Regional Water Supply maintenance costs are based on the 2008/9 expenditure of \$170,10 as stated in the 2008/9 Budget report.

The total expenditure forecast for the water supply assets is shown in Figure 5.1.

Figure 5-1 Proposed total operating, maintenance and capital costs

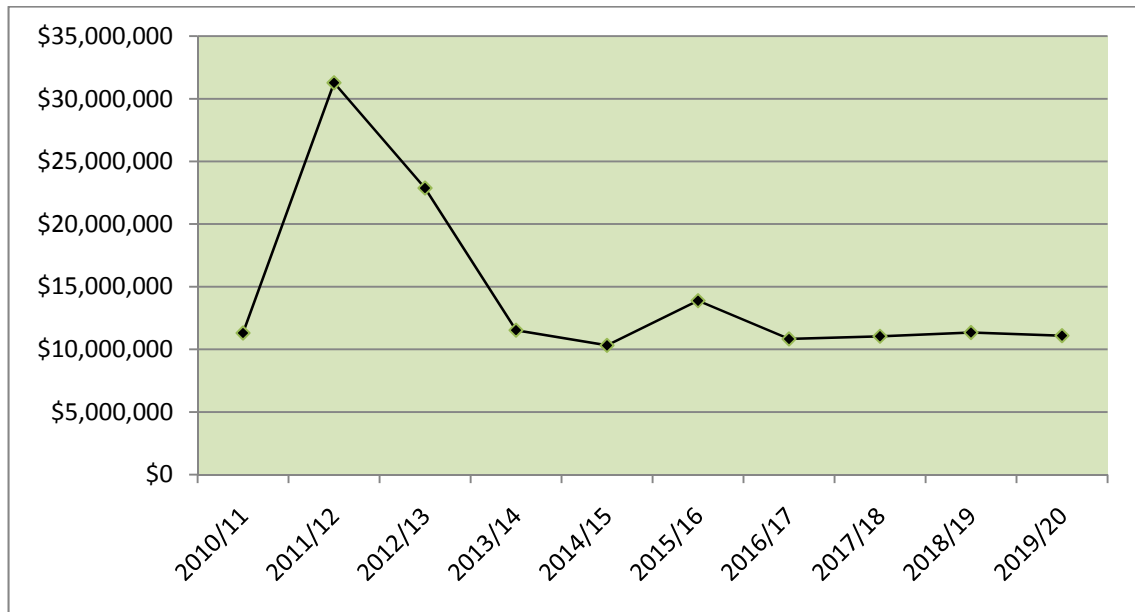


Table 5-2 Operational and maintenance expenditure forecasts

\$,000	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
Dams	340	350	361	371	380	389	398	408	418	428
Reservoirs	266	274	282	291	298	305	312	320	328	336
Pumping Stations	360	429	471	518	530	543	556	570	583	597
Emerald Booster Chlorination Plant	20	21	21	22	23	23	24	24	25	25
Nana Glen Water Supply	73	78	81	84	86	88	90	92	95	97
Coramba Water Supply	45	24	15	16	16	17	17	18	18	18
Water Conditioning/filtration plant	1,080	1,158	1,246	1,382	1,415	1,449	1,484	1,520	1,556	1,593
Mains Maintenance	1,130	1,175	1,222	1,271	1,302	1,333	1,365	1,397	1,431	1,465
Catchment and Weirs	56	58	59	61	62	64	65	67	69	70
Telemetry	20	21	21	22	23	23	24	24	25	25
Total	3,390	3,588	3,779	4,038	4,135	4,234	4,336	4,440	4,546	4,655

- The pump station at Karangi Dam is no longer used to pump to the top of Red Hill. The pump station at Karangi WTP does this now. This expenditure may have double counted.
- The cost of servicing Coramba will be reduced when Coramba Water Supply is connected to Karangi WTP and WTP costs increased!

Table 5-3 Renewals expenditure forecasts

\$,000	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
AC and other types of pipe renewal	494	509	521	534	547	560	573	587	601	494
White uPVC pipe renewal	1,073	1,099	1,125	1,152	1,178	1,205	1,235	1,270	1,300	1,350
Mechanical and Electrical equipment renewal	0	0	0	0	0	2,333	2,389	2,446	2,505	0
Telemetry renewal	0	0	0	556						0
Total	2,072	2,132	1,521	2,114	1,595	3,966	4,061	4,159	4,258	2,072

Table 5-4 Acquisition projects expenditure forecasts

\$,000	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	total
Shepherds Lane Res	200	1,500	0	0	0	0	0	0	0	0	1,700
Reticulation mains (s64 strategy)	600	603	651	500	3,810	520	510	559	635	0	8387
Unwins reservoir	0	0	0	0	2,000	0	0	0	0	0	2,000
West Woolgoolga 60kW. P/ Station	0	0	0	0	500	0	0	0	0	0	500
West Woolgoolga Reservoir demolition	0	0	0	0	100	0	0	0	0	0	100

\$,000	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	total
Duplicate trunk main Karangi - Red Hill B/T*	0	0	0	0	0	0	0	2,080	0	0	2,080
Mains extensions	50	50	50	50	50	50	50	50	50	50	500
Service connections	289	298	300	300	300	300	300	300	300	300	2,987
Telemetry	50	50	20	20	20	20	20	20	20	20	260
Minor works	20	20	20	20	20	20	20	20	20	20	200
Coramba water main	750	0	0	0	0	0	0	0	0	0	750
Moonee to Emerald Trunk Main	0	0	2,372	0	0	0	0	0	0	0	2,372
Total	1,959	2,521	3,413	890	6,800	910	900	3,029	1,025	390	21836

- *may be brought forward to 2012/13

5.3 Funding strategy

The funding strategy is detailed in Council's 10 year long term financial plan.

5.4 Valuation forecasts

Asset values are forecast to increase as additional assets are added to the asset stock from construction and acquisition by Council and from assets constructed by land developers and others and donated to Council. The projected replacement cost asset values over the planning period is predicted to grow by 3% annually.

6. ASSET MANAGEMENT PRACTICES

6.1 Financial systems

Coffs Harbour City Council uses Finance One software for the management of its financial information. This system is managed by Council's finance department.

Financial reporting must comply with the following Australian Accounting Standards:

- AASB 5 Non-current Assets Held for Sale and Discontinued Operations
- AASB 116 Property, Plant and Equipment
- AASB 136 Impairment of Assets
- AASB 138 Intangible Assets
- AASB 140 Investment Properties
- AASB 1051 Land Under Roads

The guidelines provided by the Department of Local Government are also complied with.

Items of infrastructure, property, plant and equipment are not capitalised unless their cost of acquisition exceeds \$2,000.

6.2 Asset data

Council is in the process of implementing AssetMaster as its corporate asset management system. At present asset data for infrastructure asset is held in a number of systems including Council's GIS, access data bases and excel spreadsheets.

It is anticipated that AssetMaster will be fully implemented prior to the end of the 2010/11 financial year and will include integration between the asset system and Council's financial system.

6.3 Asset management gap analysis

An asset management gap analysis covering all asset classes was undertaken in August 2010. The results of the gap analysis for water are shown in the table below. The desired score for each component is 6. The findings of the gap analysis form the basis of the improvement plan.

Table 6-1 Findings from gap analysis assessment

Water & Sewerage Assets	Current Score	Desired score 3yrs	Priority (1-3)	1	2	3	4	5	6	7	8	9	10
Asset Knowledge / Data	5.0	6.0											
Asset Classification / hierarchy	4	6											
Physical attributes and location	6	6											
Operational / Maintenance data	6	6											
Condition data	5	6											
Performance utilisation data	6	6											
GIS / spatial data	4	6											
Lifecycle cost data	4	6											
Valuation, depreciation and effective life data	5	6											
Data processes / techniques	2.1	6.0											
Asset identification / clarification processes	2	6											
Data capture strategies and processes	2	6											
Condition assessment processes / rating systems	2	6											
Performance utilisation processes	2	6											
Asset GIS mapping systems	2	6											
Asset handover procedures	3	6											
Data management processes	2	6											
Strategic Asset Planning Processes	2.9	6.0											
Levels of service	3	6											
Demand forecasting	4	6											
Risk management	3	6											
Optimised decision making / predictive modelling	2	6											
Lifecycle planning and funding projections	3	6											
Financial planning and capital investment	3	6											
Asset capital processes	3	6											
Asset management plans	2	6											
Operations Maintenance and Work Processes	3.7	6.0											
Maintenance strategies	2	6											
Emergency response plans	3	6											
Contract administration	4	6											
Maintenance management	5	6											
Design / construction strategies	6	6											
Critical assets	2	6											
Information Systems	3.8	6.0											
Asset register	3	6											
Asset costing systems	3	6											
Plans & records	4	6											
Works / maintenance management	5	6											
GIS	4	6											
Asset management system / modules	3	6											
Systems integration	4	6											
Availability / user friendly	4	6											
Organisational / Commercial Context	2.3	6.0											
Organisational strategy	2	6											
Asset management review / improvement	2	6											
Commercial tactics	4	6											
Corporate sponsorship / commitment	2	6											
AM roles and responsibilities	2	6											
Training and awareness	2	6											

6.4 Asset data

Reservoir condition data exists on an external web site, provided by Council’s reservoir maintenance contractor and accessible by Council. There is limited condition data on other water assets. Attributes and spatial data exists for all water assets and is currently stored in the AMS database, GIS database and various other systems.

7. IMPROVEMENT PLAN

7.1 General areas for improvement

The gap analysis identified areas for improvement across all asset classes. These are termed general areas for improvement, and are listed in table 7-1. The highest priority tasks are:

1. Finalising and implementing the Improvement Plan
2. Establishing Levels of Service that are linked to the community plan to enable activities and expenditure to be established in accordance with the wishes of the community
3. Clearly identifying responsibilities and roles within the organisation in relation to asset management
4. Confirming corporate sponsorship of and commitment to asset management across the organisation
5. Preparation of written procedures for data and information collection

The improvement plan with tasks specifically related to water supply assets is shown in Table 7-2.

Note that, unless otherwise stated, responsibilities and resource requirements are to be confirmed.

7.2 Performance measures

The effectiveness of this asset management plan can be measured:

- by monitoring actual expenditure for capital and operational and maintenance against forecast expenditure
- by monitoring compliance with Level of Service performance targets
- by monitoring performance in relation to the improvement plans included in the asset management plan.
- by monitoring the performance indicators in the NSW Office of Water Performance Monitoring Report and the National Performance Report for urban water utilities..

Table 7-1 General improvement plan

Task No.	Task	Priority	Responsible Officer	Resources Required
1	Develop Customer and Technical Levels of Service in conjunction with consultation on the next Strategic Business Plan	1		
2	Clearly define Asset Management responsibilities for the organisation and communicate across organisation	1		
3	Prepare first cut AMPs for each asset class/group based on current data and Initial Technical Levels of Service. AMPs to include asset specific improvement plans	1		
4	Regular confirmation of corporate support communicated all staff	1		
5	Review current condition assessment processes and consolidate into condition assessment procedures for water, wastewater and general fund assets (see asset specific improvement plans) that covers all asset classes	2	Manager Asset Systems	
6	Review current data management processes and consolidate into single data management procedure that covers all asset classes	2	Manager Asset Systems	
7	Establish criteria for critical assets. Then critical assets identified and recorded and included in risk management plan and emergency response plan	2		
8	Review current data capture processes and consolidate into single data capture process across all asset classes	2	Manager Asset Systems	
9	Develop asset hierarchy with intelligent IDs	2	Manager Asset Systems	
10	Develop risk assessment procedure and then undertake risk assessments for all asset classes. Needs to be linked to the corporate risk procedure	2		
11	Update emergency response Plan, taking into account critical assets.	2		
12	Establish and implement training program across the organisation	2		
13	Develop written processes for demand forecasting, taking into account the 2030 Community Plan	2		
14	Prepare procedure for asset management audit and review	2	Manager Asset Systems	

Task No.	Task	Priority	Responsible Officer	Resources Required
15	Prepare written asset GIS mapping procedure	2	Manager Asset Systems	
16	Prepare maintenance Strategies linked into Levels of Service, critical assets and condition assessments	3		
17	Develop asset hierarchies in accordance with the procedure	3	Manager Asset Systems	
18	Update valuation, depreciation and effective life data to take condition data into account	3		
19	Develop asset cost system to allocate operation and maintenance and renewals costs to specific assets	3		
20	Prepare procedures for managing planned and unplanned maintenance in accordance with the maintenance strategy. Prepare and implement maintenance specifications	3		
21	Review current performance utilisation processes and consolidate into performance measurement procedures	3		
22	Prepare written asset handover procedure. Needs to include for handover of developer as well as CHCC generated assets	3		
23	Develop and implement guidelines/processes for lifecycle planning and funding projections, including operating, maintaining, renewals, development and disposal of assets	3		
24	Complete GIS data input and audit current data quality after procedure implemented	3	Manager Asset Systems	
25	Prepare procedure to ensure plans and records properly managed	3	Manager Asset Systems	
26	Prepare written capital investment procedure, to include asset risk assessments	3		
27	Ensure linkages between planning/community plan and asset management are in place and prepare a process to convert strategies into actions.	3		
28	Prepare procedures for project initiation and asset reviews	3		
29	Review existing procedures and update if required	3		
30	Collect performance data following completion of data capture and management procedures	4		

Task No.	Task	Priority	Responsible Officer	Resources Required
31	Life cycle costs to be collated following collection of maintenance data and changes to cost recording system	4		
32	Undertake review to ensure contract administration is consistent with other procedures and legislative requirements	4		
33	Optimised decision making may be deferred until basic asset management functioning properly	5		
34	Complete installation and development of AssetMaster.	on going	Manager Asset Systems	
35	Undertake condition assessments of some asset classes in accordance with procedure. Update condition data for other asset types in accordance with procedure.	on going		
36	Operations and maintenance data currently collected in water/wastewater, some data in other asset types. Audit data quality after procedure implemented	on going		
37	Works / maintenance cost management to be included in development of AssetMaster. Note that water/wastewater have own system	on going		
38	Continue with integration of systems	on going		
39	Review availability/user friendliness of system when Asset Master fully implemented	on going		
40	Continue with loading data onto GIS. Data quality to be audited after procedure implemented	on going	Manager Asset Systems	
41	No immediate action regarding design/construction strategies, other than regular reviews	on going		
42	Development of asset register to continue. Will need to be updated for asset hierarchy etc	on going	Manager Asset Systems	

Table 7-2 Water supply asset improvement plan

Task No.	Task	Priority	Responsible Officer	Resources Required
1	Develop revised Levels of Service	1		
2	Agree a maintenance plan for the Regional Water Supply pipelines with Clarence Valley Council	2		
3	Establish procedure for risk based renewals prioritization based on burst frequencies, age of pipe etc	1		
4	Create and maintain GIS layer showing location of pipe bursts	1		
5	Carry out an asset risk assessment for water supply assets	1		
6	Develop maintenance management plans based on the asset risk assessment	2		

7.3 Monitoring and review procedures

This asset management plan will be reviewed during annual budget preparation and amended to recognise any changes in service levels and/or resources available to provide those services as a result of the budget decision process.

This asset management plan has a life of four years and is due for review in 2014.

8. REFERENCES

IPWEA, 2006, 'International Infrastructure Management Manual', Institute of Public Works Engineering Australia, Sydney.